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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/565,777 | 01/25/2006 | Kenichi Ito | 284208US0XPCT | 7539 |

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| EXAMINER | |
|---|---|
| CALANDRA, ANTHONY J | |
| ART UNIT | PAPER NUMBER |
| 1791 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 05/01/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/565,777 | ITO, KENICHI | |
| | Examiner | Art Unit | |
| | ANTHONY J. CALANDRA | 1791 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/25/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## *Detailed Office Action*

1. The communication dated 1/25/2006 has been entered and fully considered.

2. Claims 1-7 are currently pending.

## *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Animated Poly-N-Vinylformamide as a Modern Retention Aid of Alkaline Paper Sizing with acid Rosin Sizes* by Wang et al., hereinafter WANG et al. in view of U.S. Patent # 6,566,470 KANTAMNEI et al., hereinafter '470 patent.

As for claim 1 and 6, WANG discloses a paper making process and paper made by said process wherein a partially animated poly-N-vinylformamide is used as a retention aid of a rosin size (*A method for the production of paper comprising adding a fixing agent comprising a polymer in which at least N-vinylformamide is a polymerization component and/or a derivative of said polymer to a paper making process to form a paper product* [abstract and paragraph 2 pg. 1]).

WANG et al. discloses a rosin size but does not disclose a fluorine based oil-proofing agent. Sizing is the process of making paper resistant to liquids. The rosin size disclosed by WANG et al. is used to make paper water resistant. The '470 patent discloses fluorine

containing paper sizes which impart both oil and grease resistance [abstract, column 1 lines 20-40]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute the acid rosin size of WANG et al. with the perfluoralkylakanol size taught by the '470 patent. It is *prima facie* obvious to substitute one component of a known method for another known component. The function of the perfluoralkylakanol was known to impart oil and grease resistance at the time of the invention. Further, the substitution of the size of the '470 patent for the rosin size of WANG et al. would have provided the predictable results of imparting oil resistance to the formed paper. Alternatively, a person of ordinary skill in the art would be motivated to use the sizing system of WANG et al. with the perfluoralkylakanol size of the '407 patent as the retention system of WANG et al. showed increased sizing capabilities as compared to not using poly-N-vinylformamide [Figure 3, pg. 3 and 4] further WANG et al. shows increased wet and dry strength due to the use of poly-N-vinylformamide [Figure 8].

As for claim 2 and 3, WANG et al. discloses that the polymer is a hydrolysate derivative of poly-N-vinylformamide [abstract, paragraph 2 pg.1].

As for claim 4, WANG et al. discloses the range of hydrolysis of 6-95% which encompasses the instant claimed range [pg. 3 paragraph 2]. WANG et al. further discloses the specific embodiments of 80%, 50%, 42%, and 29% formamide which fall within the instant claimed ranges [Figure 1].

As for claims 5 and 7, the '470 patent discloses that the phosphate diesters of perfluoralkylakanol are the most important type of fluorine containing oil resistant compounds used in the paper industry [column 1 lines 20-35].

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent 0280115 AOYAMA et al., hereinafter AOYAMA, in view of *Animated Poly-N-Vinylformamide as a Modern Retention Aid of Alkaline Paper Sizing with acid Rosin Sizes* by Wang et al., hereinafter WANG et al.

As for claim 1, 5-7, AOYAMA discloses an anionic composition of salt of a phosphate or phosphonate prepared by neutralizing at least one partial ester selected from a group consisting of fluoralkyl partial esters of phosphonic acid and adding an anionic surfactant to form an oil resistant composition [pg. 3 lines 38-42, 47-50, and 55-56]. AOYAMA further discloses using a bonding agent [pg. 3 lines 50-55].

AOYAMA does not disclose the use of N-vinylformamide. WANG discloses a paper making process and paper made by said process wherein a partially animated poly-N-vinylformamide is used as a retention aid of a rosin size (*A method for the production of paper comprising adding a fixing agent comprising a polymer in which at least N-vinylformamide is a polymerization component and/or a derivative of said polymer to a paper making process to form a paper product* [abstract and paragraph 2 pg. 1]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute the bonding agent of AOYAMA with the N-vinylformamide of WANG. It is *prima facie* obvious to substitute one component of a known method for another known component. The function of the N-vinylformamide was known to increase retention of sizing agents. Further, the substitution retention aid of WANG for the binder of AOYAMA would have provided the predictable results of increasing retention. Alternatively, a person of ordinary

skill in the art would be motivated to use the sizing system of WANG et al. with the perfluoralkylakanol compound of the AOYAMA as WANG showed increased sizing capabilities as compared to not using poly-N-vinylformamide [Figure 3, pg. 3 and 4]. Further WANG et al. shows increased wet and dry strength due to the use of poly-N-vinylformamide [Figure 8]. Finally, WANG is compatible with the goals of AOYAMA of being able to handle hard water. WANG shows the paper formed being able to hold additional calcium carbonate [Figure 6]. Calcium ions are a known component of water hardness.

As for claim 2 and 3, WANG et al. discloses that the polymer is a hydrolysate derivative of poly-N-vinylformamide [abstract, paragraph 2 pg.1].

As for claim 4, WANG et al. discloses the range of hydrolysis of 6-95% which encompasses the instant claimed range [pg. 3 paragraph 2]. WANG et al. further discloses the specific embodiments of 80%, 50%, 42%, and 29% formamide which fall within the instant claimed ranges [Figure 1].

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

AJC